

VHF FM EXCITER/TRANSMITTER

MOD. EB 30
30 WATT

USER'S MANUAL
Release 1.0

IMPORTANT NOTE : Refer to the unit's label for your model .

Model : Description

EB 30E	VHF FM transmitter without integrated Stereo Encoder, set to 230V, MPX input or MONO with pre-emphasis switchable to 50? sec or 75? sec.
EB 30ES	VHF FM transmitter with integrated Stereo Encoder, set to 230V. MPX input or MONO with pre-emphasis switchable to 50? sec or 75? sec.
EB 30U	VHF FM transmitter without integrated Stereo Encoder, set to 115V. MPX input or MONO with pre-emphasis switchable to 50? sec or 75? sec.
EB 30US	VHF FM transmitter with integrated Stereo Encoder, set to 115V. MPX input or MONO with pre-emphasis switchable to 50? sec or 75? sec.



CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRICAL SHOCK DO NOT THIS APPLIANCE TO RAIN OR MOISTURE.



THIS SYMBOL, WHEREVER IT APPEARS, ALERTS YOU TO THE PRESENCE OF UNINSULATED DANGEROUS VOLTAGE INSIDE THE ENCLOSURE . VOLTAGE THAT BE SUFFICIENT TO CONSTITUTE A RISK OF SHOCK.



THIS SYMBOL, WHEREVER IT APPEARS, ALERTS YOU TO IMPORTANT OPERATING AND MAINTENANCE INSTRUCTIONS IN THE ACCOMPAYNING LITERATURE. READ THE MANUAL.

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EB 30 VHF FM TRANSMITTER

GENERAL DESCRIPTION

The EB 30 is a direct-synthesis VHF FM transmitter and the output power is continuous variable 0-30 W adjustable by external control.

The output frequency range is 87.5 – 108 MHz with 10 KHz step microprocessor controlled with front panel LCD visualisation and setting.

A LED displays when the PLL is locked and this lock control circuit inhibits the power on the output when the transmitter is on the right frequency.

For security reasons a pre-programmed factory password is present and it is possible in the LCD to set the name in two lines for identification, to change the modality MPX, MONO 50%sec or 75%sec or internal Stereo Encoder.

A MONO input is complete with 15 KHz low-pass audio filter.

The version /30S option is characterised by an internal Digital Stereo Encoder card.

Output frequency is phase-locked to a temperature-compensated crystal oscillator for precision and stability.

An internal deviation limiter controls the maximum frequency deviation avoiding over modulation.

In the EB 30 a protection for load mismatching (VSWR) is present and the alarm signal is displayed by front panel LED. A push button (Reset) resets this protection.

A temperature sensor controls the output power in case of high internal or ambient heat.

The accurate metering front panel bar with LED indicators allows the parameters of operating conditions: output power, reflected power, frequency deviation.

The input Left and Right channel are verified when you have set the mode Stereo Encoder.

In this special quick Vu-meter with peak memory it is possible to set perfectly a deviation level, moreover, when the audio signal is low or not present, an automatic x10 level function helps the adjustment of sub carrier.

Rear panel adjustment, output power setting (RF OUT ADJ), frequency deviation (MPX ADJ), Left and Right ADJ are the operations that can be performed.

A 30W broadband output stage of high efficiency through the use of VHF power MOSFETs is present.

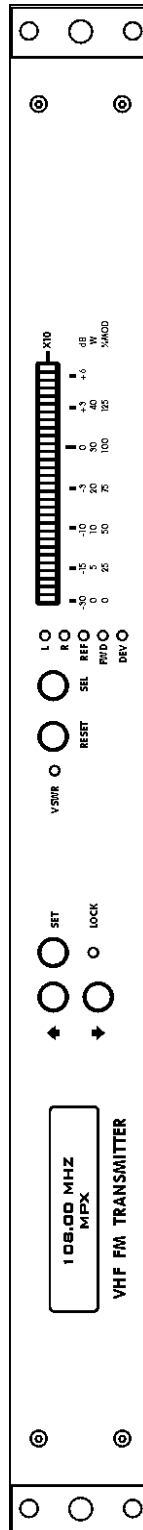
A low-pass filter reduces at the minimum harmonics spurious in accordance with international requirements.

The completely internal modular construction simplifies eventually maintenance or repair.

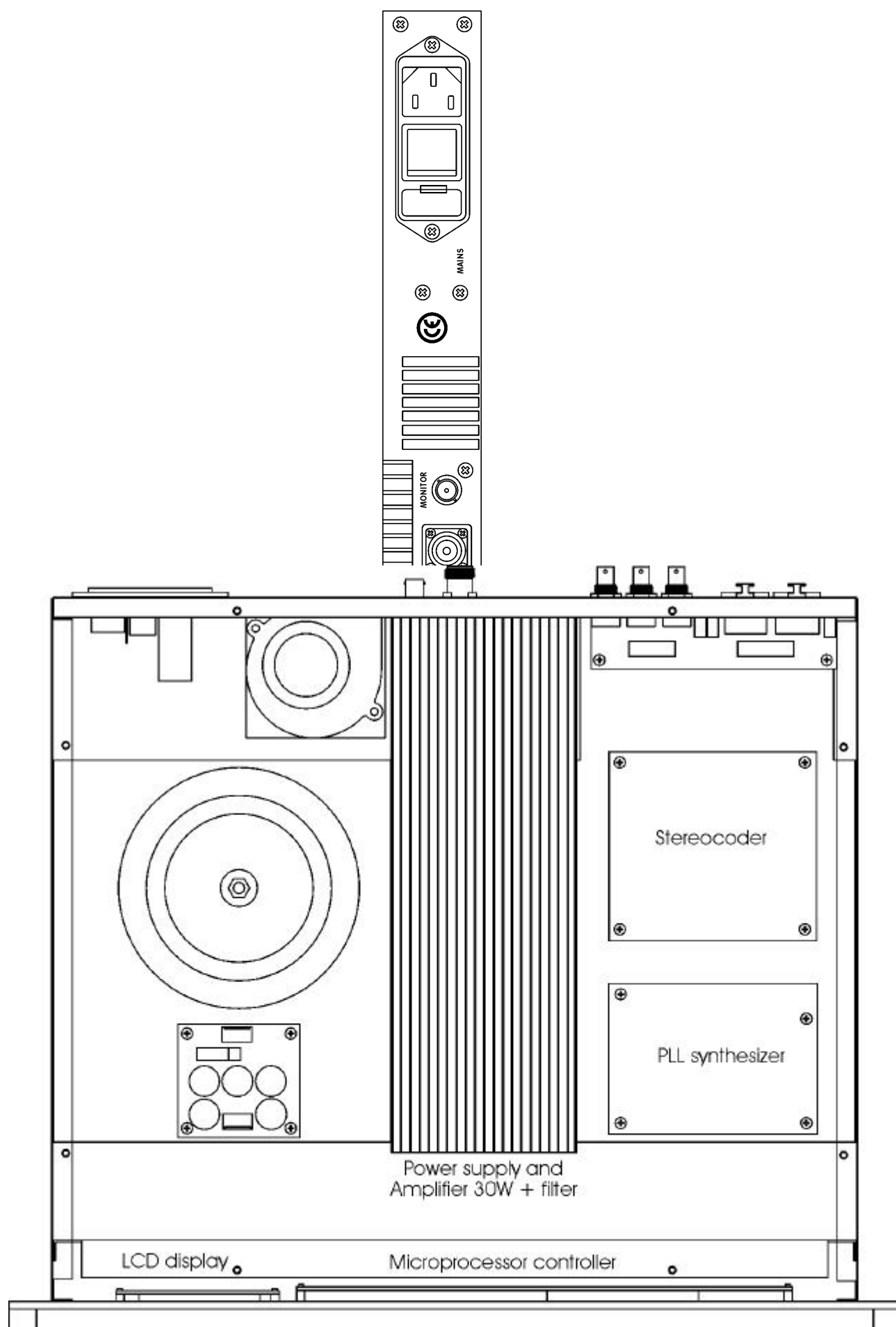
Switching-mode power supply reduces the internal dissipation and power consumption.

TECHNICAL FEATURES

EB 30 FRONT PANEL



EB 30 REAR PANEL



TECHNICAL SPECIFICATION

RF output

Frequency range :	87.5 ? 108 MHz
Frequency stabilisation:	synthesizer with PLL
Class of emission:	FM F3E(f3)
Synthesis step:	10 KHz
Frequency stability:	<200 Hz
Frequency drift:	? ? 200Hz(after 3 months)
Output impedance:	50?
Output connector:	N female , unbalanced, rear panel
Output power:	0 to 30W adjustable
VSWR:	? 2 at full power (30W)
Monitor output:	? -50 dB of carrier
Monitor output connector:	BNC female, unbalanced, rear panel
Harmonics:	? -65dB
Spurious:	? -80dB

Transmission characteristics

Mono operation

Input level:	-3 ? +10 dBm
Input impedance:	10 K?
Input connector:	BNC female, unbalanced, rear panel
Bandwidth:	20 ? 15 KHz (? 0.25 dB)
Attenuation of frequency ? 19KHz:	?
Preemphasis:	50/75 ? sec
S/N ratio :	? 75 dB (? 75 KHz dev. 1 KHz ,50? sec deemph.)
THD+N :	? 0.1% (? 75 KHz dev. 1 KHz)

MPX operation

Input level:	-3 ? +10 dBm
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Input impedance: >10 K?
 Input connector: BNC female, unbalanced, rear panel
 Bandwidth: 20 ? 100 KHz (? 0.25 dB)

Stereo operation (internal stereocoder)

L and R input level: -3 ? +10 dBm
 Input connector: XLR female, balanced or unbalanced
 Input impedance: 10 K? or 600? selectable by internal link
 Bandwidth: 20 ? 15 KHz (? 0.25 dB)
 Attenuation of frequency ? 19KHz: ?60 dB
 Preemphasis: 50/75 ?sec
 S/N ratio : ? 73 dB (?75 KHz dev. 1 KHz ,50?sec deemph.)
 THD+N : ? 0.1% (?75 KHz dev. 1 KHz)
 Stereo crosstalk: ? -50 dB

Supplementary signal

SCA input
 Input impedance: 1 K?
 Input connector: BNC female, unbalanced, rear panel

General data

Temperature range: 0 to 40° C
 Operating temperature range: -10 to + 45° C
 AC supply: 115/230 V ? 10% 50/60 Hz
 Consumption: 70VA @ 30 Wout
 Cooling system: air forced, 24DC fan
 Humidity: 95% max.

Dimension (W x H x D), weight 19" 1U, 482 mm x 44 mm x 440 mm , 8 Kg

INSTALLATION AND USE

Before proceeding with the installation it is important to control if the main voltage corresponds to the factory set.

Install the transmitter in a aerated, dry environment, with 10 to 35 °C temperature range.

Connect an antenna or a dummy load to the RF out connector in the rear panel, utilising a 50 ohm cable type with N connector. A cable RG213 type is suitable.

Operation without antenna or with a faulty connection cable may cause a possible breaking or degradation of the final amplifier.

Connect an audio source with appropriate connector and a cable to obtain the best result and hi-fi quality on a long term basis.

Check out that the main on/off switch on the rear panel is in off position.

Control that the output power is at the minimum level.

Connect the transmitter to the main power supply using the cord on issue.

Switch on the transmitter: on the front panel you will see the LCD display lighted, the led "DEV" light on and few seconds later the "LOCK" led on too.

If the set frequency is wrong, proceed as explained in Chapter "Frequency setting".

Look at the front panel meter selecting "FWD" measure through the "SEL" pushbutton, then adjust the output power by means of the rear panel trimmer.

Pressing the up/down button, a pre-set logo will be displayed: in order to change the logo please refer to chapter "Logo setting".

For security reasons, a password to proceed with the setting operations can be included; a pre-set password is already included by the factory and can be set on or off as explained in chapter "Password setting". The password is different for any transmitter produced and it is composed by n. 5 number.

FREQUENCY SETTING

Switch the transmitter off through the on/off main switch on the rear panel; keeping the “SEL” button pressed, switch the transmitter on; in the LCD display

MODE SETUP
STEREOCODER

will be showed; through the up/down arrows select the transmission mode, “STEREOCODER, MPX, MONO PRE 50uS, MONO PRE 75uS

MODE SETUP
MPX

and confirm through the “SET” pushbutton; in the frontal display

100.00 MHz
Frequency Setup

will be showed; by pressing the up/down arrows select the required frequency. Please note that keeping the up/down arrows pressed the frequency steps will change quickly. Confirm through the “SET” pushbutton.

LOGO SETTING

Switch the transmitter off through the on/off main switch on the rear panel; keeping the up and the down arrows pressed simultaneously, switch the transmitter on; in the LCD display

FIRST ROW
SOFRATEC FRANCE

will be showed; through the up/down arrow buttons change the alphanumeric characters, confirm with “SEL” button and step to the next character; once completed the row, confirming with “SEL” button, in the LCD display

SECOND ROW
BROADCAST

will be showed; proceed as above indicated for the first row.
The complete logo is

SOFRATEC
FM EXCITER

PASSWORD SETTING

Switch the transmitter off through the on/off main switch on the rear panel; keeping the “SEL” and “SET” pushbuttons pressed simultaneously, switch the transmitter on.

In the LCD display

<div>0</div> <div>Password</div>

will be showed. Through the up/down arrows select the first number, confirm with the “SET” button and step to the next number.

<div>0 2 4 6 8</div> <div>Password</div>
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Once completed the operation, if the password is correct, switching the transmitter on in setup mode the system will ask for the password; without the correct password (2nd password number) the setup mode cannot be selected. In order to disable the password, repeat the above explained procedure, selecting the first password on issue by the customer. The next setup procedure will not require the password.

MODULATION ADJUSTMENT

Mono operation

Switch the transmitter off through the on/off main switch on the rear panel; keeping the “SEL” button pressed, switch the transmitter on; in the LCD display

MODE SETUP
STEREOCODER

will be showed; through the up/down arrows select the transmission MONO PRE 50uS or MONO PRE 75uS

MODE SETUP
MONO PRE 50uS

and confirm through the “SET” pushbutton; in the frontal display “frequency setup” will be showed ,by pressing the up/down arrows select the required frequency.

Apply a Mono signal in the input BNC connector on the rear panel (10K Ω input impedance emphasised) and select “DEV” measure through the “SEL” pushbutton.

Look at the front panel meter and adjust the deviation level by means of the rear panel trimmer “input adj” .

When modulation is 75KHz they light on leds green. Lighting of an or more leds led, it involves a over-modulation.

For a accurate measure, the first red led, when it light on, it remains memorised for a little of time.

Mpx operation

Switch the transmitter off through the on/off main switch on the rear panel; keeping the “SEL” button pressed, switch the transmitter on; in the LCD display

MODE SETUP
STEREOCODER

will be showed; through the up/down arrows select the transmission MPX

MODE SETUP
MPX

and confirm through the “SET” pushbutton; in the frontal display “frequency setup” will be showed, by pressing the up/down arrows select the required frequency.

Apply a MPX signal in the input BNC connector on the rear panel (10K Ω input impedance) and select “DEV” measure through the “SEL” pushbutton.

Look at the front panel meter and adjust the deviation level by means of the rear panel trimmer “input adj”.

When modulation is $\geq 75\text{KHz}$ they light on leds green. Lighting of an or more leds led, it involves a over-modulation.

For a accurate measure, the first red led, when it light on, it remains memorised for a little of time.

Stereocoder operation (with internal card)

Switch the transmitter off through the on/off main switch on the rear panel; keeping the “SEL” button pressed, switch the transmitter on; in the LCD display

MODE SETUP STEREOCODER

will be showed; through the up/down arrows select the transmission STEREOCODER and confirm through the “SET” pushbutton; in the frontal display “frequency setup” will be showed ,by pressing the up/down arrows select the required frequency.

Apply a Left and Right signal in the corresponding female XLR connectors on the rear panel (10K Ω input impedance) and select “L” measure through the “SEL” pushbutton. Look at the front panel meter and adjust the input stereocoder level by means of the rear panel trimmer “Left adj.” .

Select “R” measure through the “SEL” pushbutton and look at the front panel meter; adjust the input stereocoder level by means of the rear panel trimmer “Right adj.” .

At this time select “DEV” measure through the “SEL” pushbutton.

Look at the front panel meter and adjust the deviation level by means of the rear panel trimmer “input adj.”. When modulation is 75KHz green leds are on. One or more red leds on means an over-modulation.

For an accurate measure, the first red led, when on, remains memorised for a little time.

At this point level of sub carrier at 19KHz can be checked. Set at zero audio levels of left and right input; automatically, after a few seconds, the Vu-meter sets in X10 and the right red led turns on.

Measure now the level to have 0dB, corresponding to the 10% of modulation.

SCA operation

For SCA signal (>53 KHz), use the input BNC connectors (1 K Ω input impedance).
The SCA input level, for a correct deviation of the main carrier (\pm 1.25KHz peak), is about 0.3 Vpp.

POWER SUPPLY BOARD

GENERAL DESCRIPTION

The power supply of the transmitter is composed of more parts:

- ?? Toroidal transformer
- ?? Two rectifier bridge and capacitor filter card
- ?? Switching-mode control card

A toroidal transformer reduces a main voltage for the “rectifier and capacitor card”.

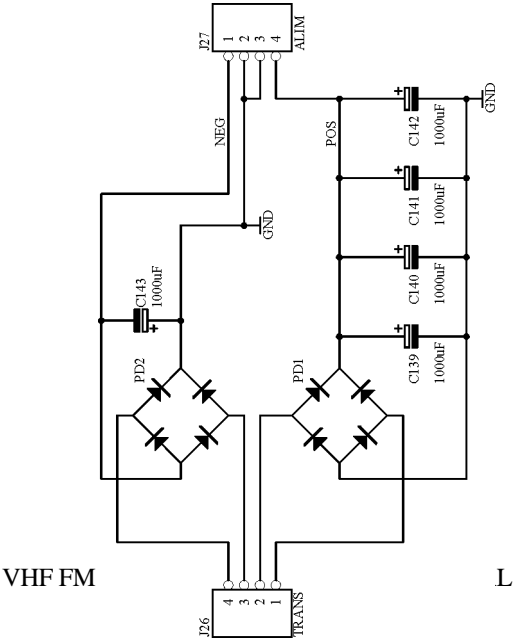
This transformer has two secondary voltage outputs and precisely 31Vac and 15Vac.

A rectifier bridge card rectifies and levels the voltage for the “switching-mode card”.

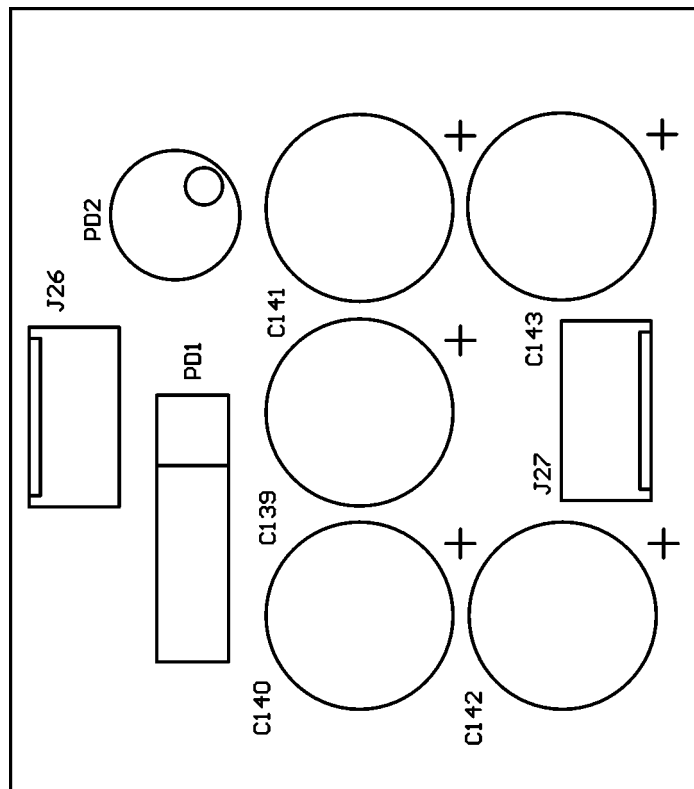
The efficiency in this power supply is higher than 85% and the voltage output are constant even in case of wide mains fluctuations (\pm 10%).

This power supply gives +28VDC to the power amplifier, +24VDC to the fan, +12VDC/-12VDC to the synthesizer card, the stereocoder card and the vu-meter card, +5VDC to the microprocessor card and the LCD display.

POWER SUPPLY – RECTIFIER ELECTRICAL SCHEMATIC



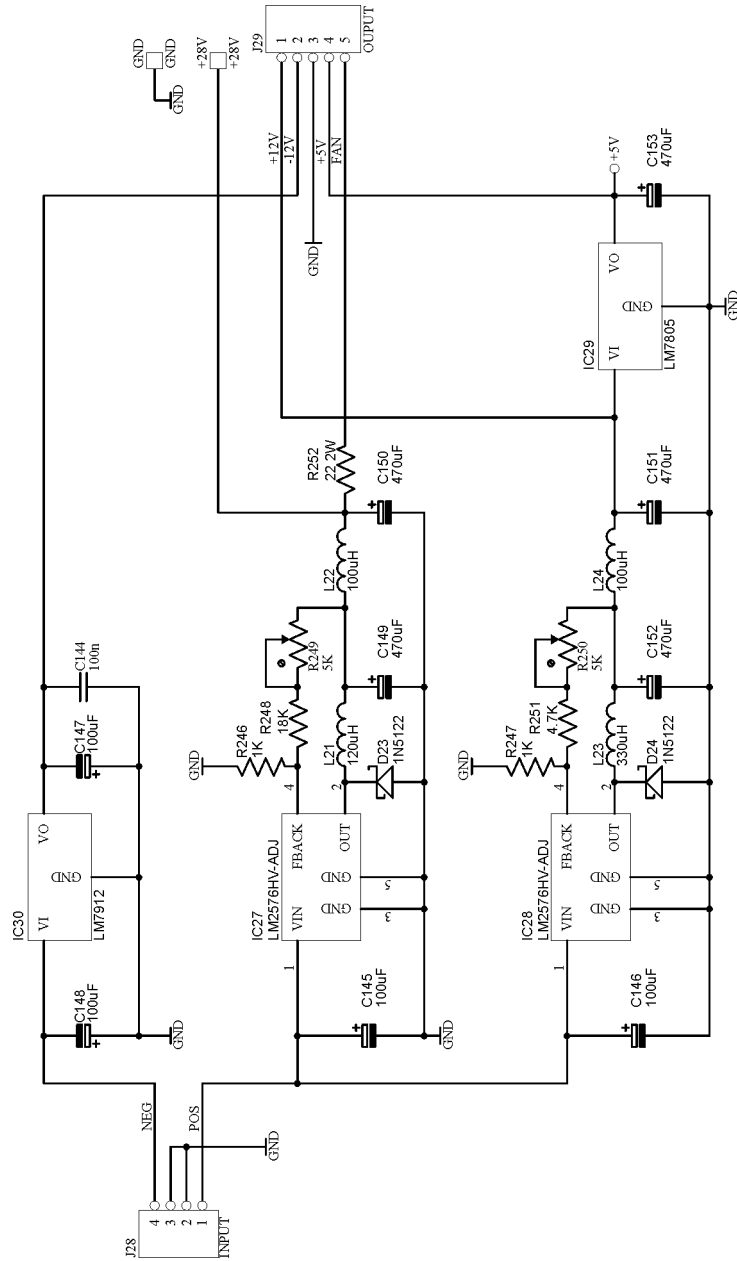
POWER SUPPLY – RECTIFIER COMPONENT LAYOUT



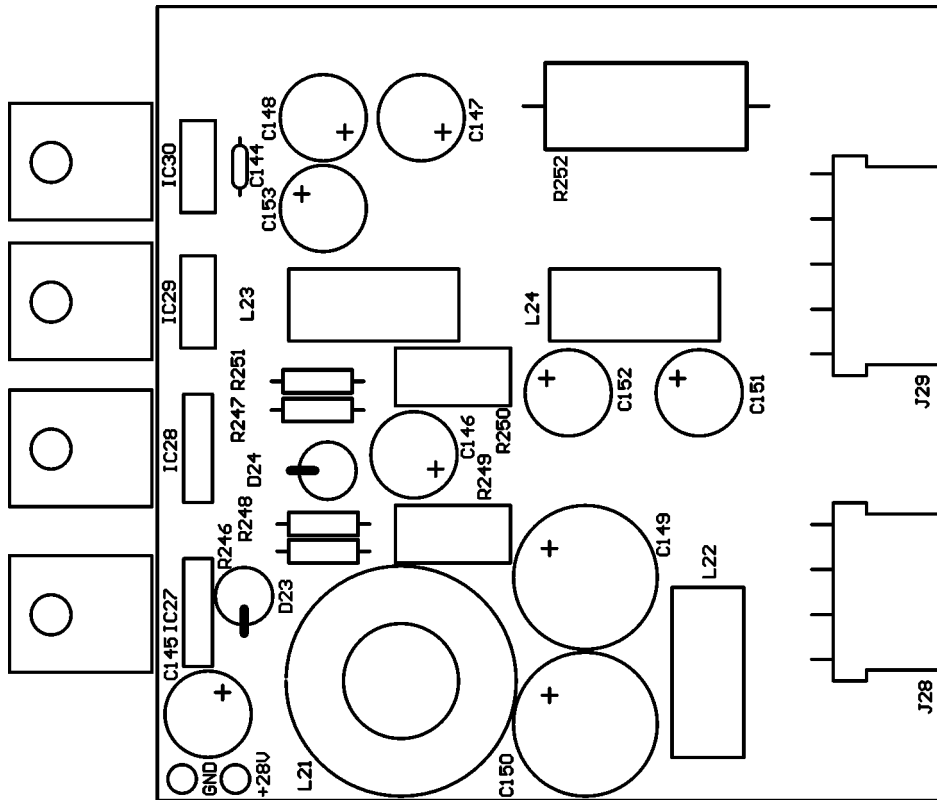
POWER SUPPLY – RECTIFIER PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	1	RECT.BRIDGE 1A	PD1
2	1	RECT.BRIDGE 6A	PD2
3	5	1000uF 50V	C139 C140 C141 C142 C143
4	1	CONNECTOR	J27
5	1	CONNECTOR	J26

POWER SUPPLY SWITCHING MODE ELECTRICAL SCHEMATIC



POWER SUPPLY – SWITCHING MODE COMPONENT LAYOUT



POWER SUPPLY – SWITCHING MODE PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	1	PIN	+28V
2	2	1K	R246 R247

3	2	1N5122	D23 D24
4	1	4.7K	R251
5	2	5K	R249 R250
6	1	18K	R248
7	1	100n	C144
8	4	100uF	C145 C146 C147 C148
9	2	100uH	L22 L24
10	1	120uH	L21
11	1	22 ohm 2W	R252
12	1	330uH	L23
13	1	470uF	C149
14	2	470uF	C150 C151
15	2	470uF	C152 C153
16	1	PIN	GND
17	1	CONNECTOR	J28
18	2	CI LM2576HV-ADJ	IC27 IC28
19	1	CI LM7805	IC29
20	1	CI LM7912	IC30
21	1	CONNECTOR	J29

PLL SYNTHESIZER MODULATION BOARD

GENERAL DESCRIPTION

The synthesiser modulation board is a classical PLL circuit with 10KHz step across the entire FM band. The fundamental frequency VCO, PLL integrated circuit and any RF

parts are inside in a proprietary PLL synthesiser module; the RF out is present in J1 connector.

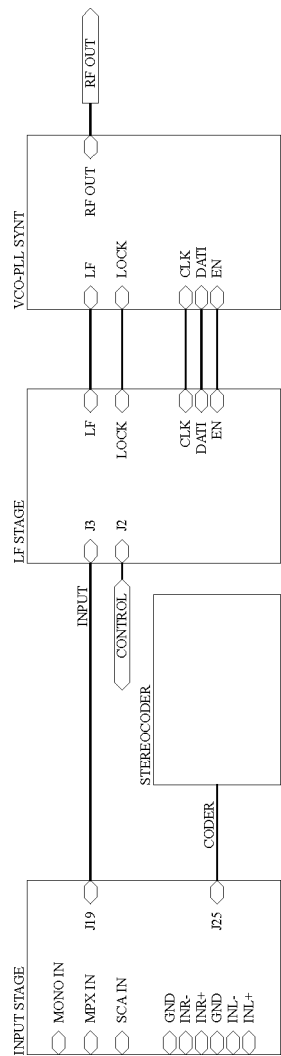
This PLL circuit is controlled by microprocessor for frequency setting and it is modulated by LF stage that accepts a composite stereo (MPX), mono and SCA signals.

The mono input level is calibrated by R76 trimmer, pre-emphasised with 50 or 75 μ sec, filtered by elliptic filter with a flat response (20 to 15KHz \pm 0.25dB) and it has an out band attenuation \sim 50dB for frequency greater than 19 KHz. The mono audio signal is present in a IC5B sum amplifier but when it is not utilised, it is switched off by IC6C.

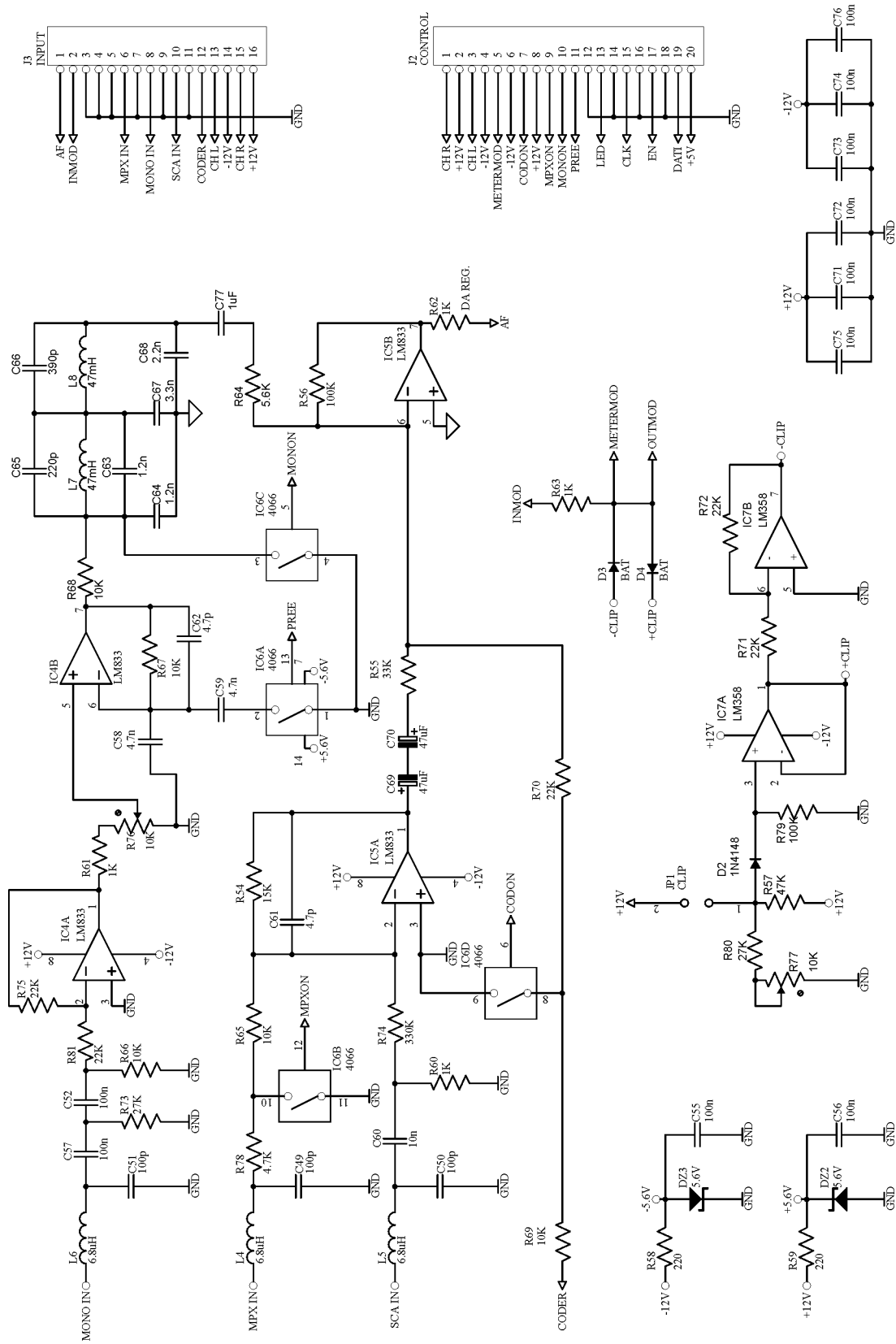
The composite stereo signal and the SCA sub-carrier are always summed in the IC5B but when they are not utilised, they are switched off by IC6D and IC6B.

Before the VCO stage, there is an adjustable and selectable (jumper JP1) deviation limiter that prevents the over-modulation.

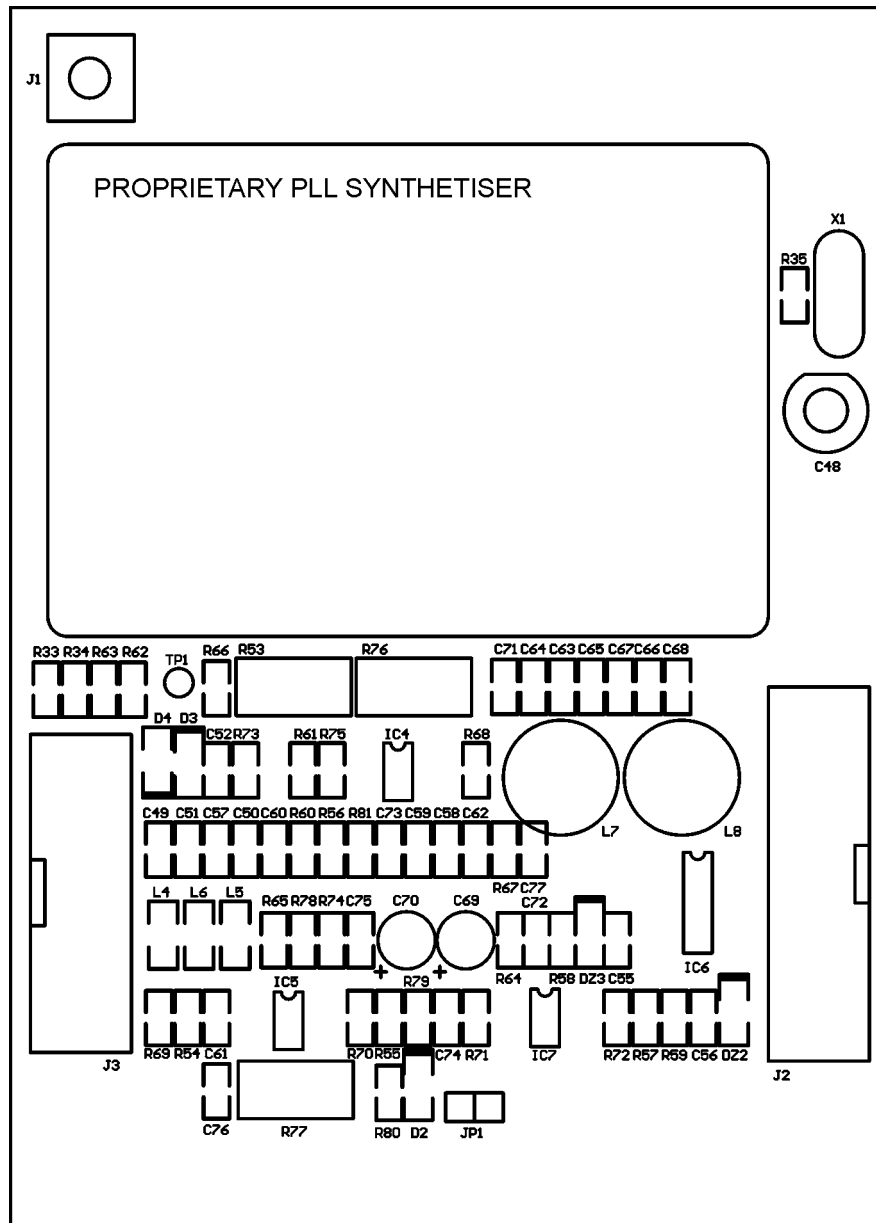
PLL SYNT. GENERAL ELECTRICAL SCHEMATIC



LF STAGE ELECTRICAL SCHEMATIC



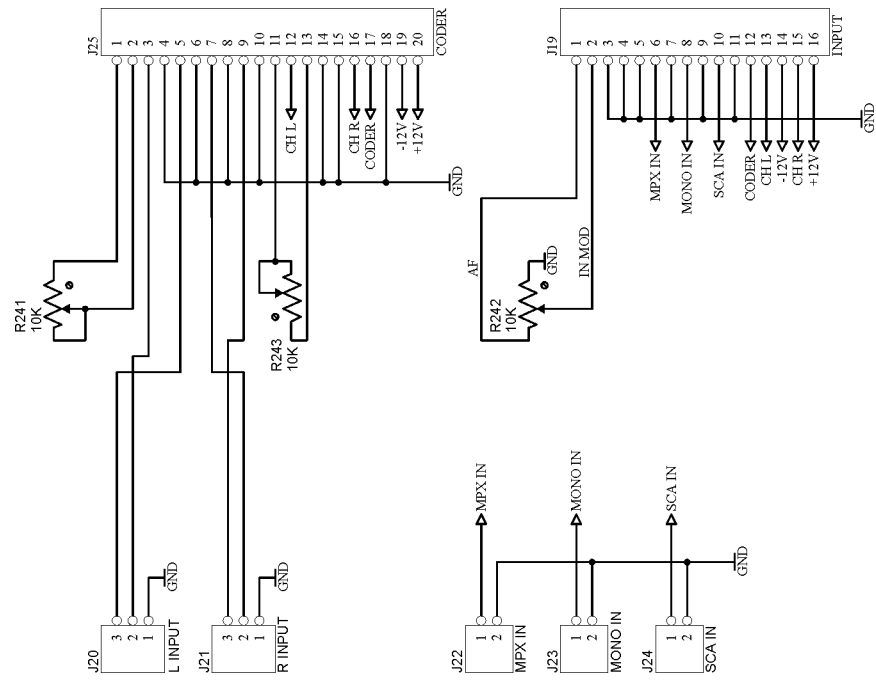
PLL SYNTHESIS COMPONENT LAYOUT



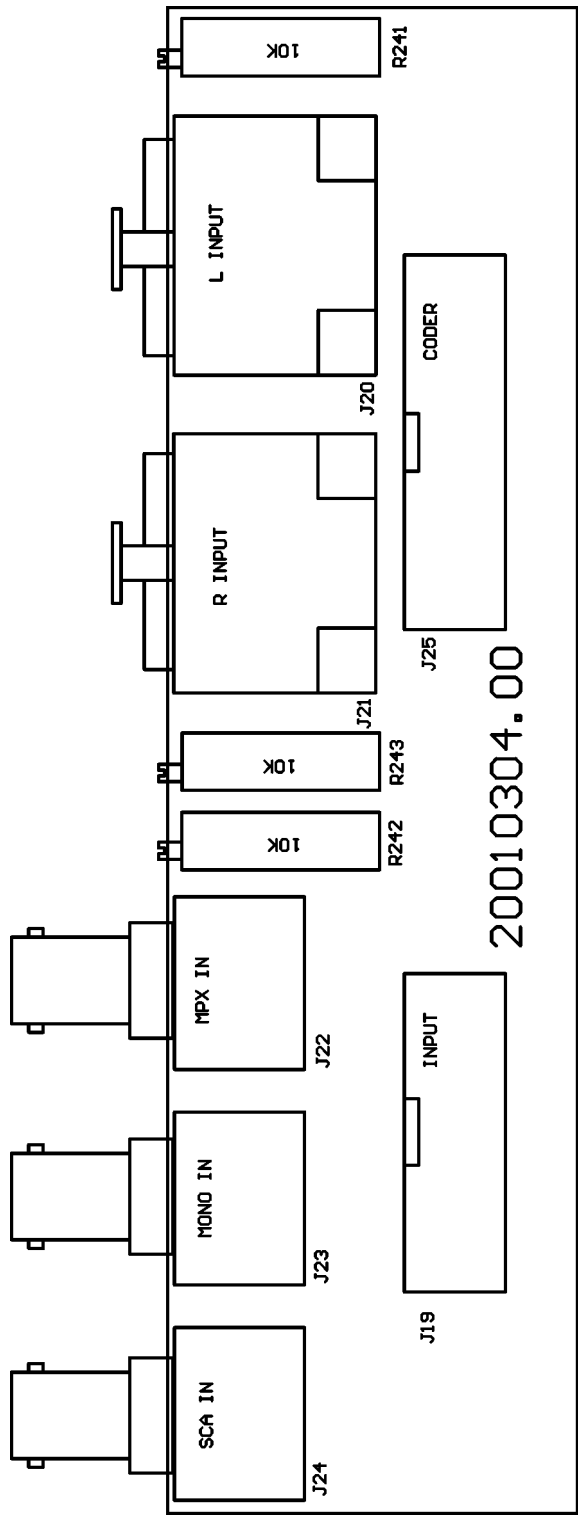
PLL SYNTHESIS PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	2	1.2n	C63 C64
2	4	1K	R60 R61 R62 R63
3	1	1N4148	D2
4	1	1uF	C77
5	1	2.2n	C68
6	1	3.3n	C67
7	1	4.7K	R78
8	2	4.7n	C58 C59
9	2	4.7p	C61 C62
10	1	5.6K	R64
11	2	ZENER 5.6V	DZ2 DZ3
12	3	6.8uH	L4 L5 L6
13	7	10K	R65 R66 R67 R68 R69
14	1	10n	C60
15	1	15K	R54
16	5	22K	R70 R71 R72 R75 R81
17	2	27K	R73 R80
18	1	33K	R55
19	1	47K	R57
20	2	47mH	L7 L8
21	2	47uF	C69 C70
22	2	100K	R56 R79
23	10	100n	C52 C55 C56 C57 C71 C72 C73 C74 C75 C76
24	3	100p	C49 C50 C51
25	2	220 ohm	R58 R59
26	1	220p	C65
27	1	330K	R74
28	1	390p	C66
29	1	IC CD4066	IC6
30	2	SCHOTTKY	D3 D4
31	1	JUMPER	JP1
32	1	CONNECTOR	J2
33	1	CONNECTOR	J3
34	1	IC LM358	IC7
35	2	IC LM833	IC4 IC5
36	2	10K TRIMMER	R76 R77
37	1	SMB CONNECTOR	J1
38	1	4MHz	X1
39	1	CAP VAR 22p	C48
40	1	1M	R35

INPUT STAGE ELECTRICAL SCHEMATIC



INPUT STAGE COMPONENT LAYOUT



INPUT STAGE PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	3	10K TRIMMER	R241 R242 R243
2	1	CONNECTOR	J25
3	1	CONNECTOR	J19
4	1	XLR CONNECTOR	J20
5	1	BNC CONNECTOR	J23
6	1	BNC CONNECTOR	J22
7	1	XLR CONNECTOR	J21
8	1	BNC CONNECTOR	J24

MICROPROCESSOR AND CONTROL BOARD

GENERAL DESCRIPTION

The microprocessor and control board is a circuit that contains the CPU, the push button for setting, the led vu-meter for analog measurement and the resetable protection for SWR.

The CPU, a 8bit with an internal memory flash, controls the LCD display, the PLL frequency and all the control functions.

The alphanumeric display is a separate module, connected to the board by a small flat cable. The internal board trimmer R148 regulates the LCD contrast. A power supply for the backlight leds is provided by J9.

The led vu-meter is a separate circuit and controls the level of direct and reflected power and the level of deviation too.

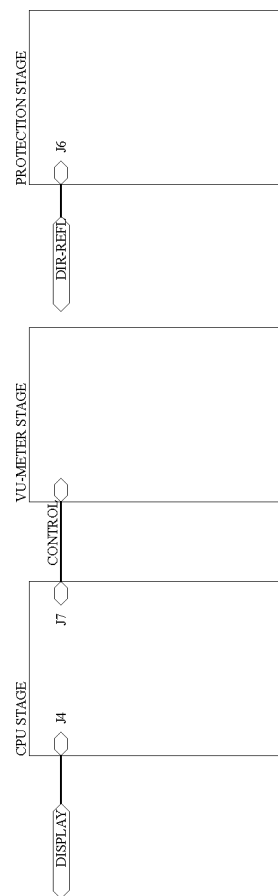
The internal trimmer for the regulation of level deviation is R191, for the regulation of X10 level is R186, for the regulation of direct power level is R244, for the regulation of reflected power level is R215 (set to obtain the maximum possible level of SWR at 0 dB).

The protection circuit is a calibrated circuit with regulation threshold by R210 trimmer.

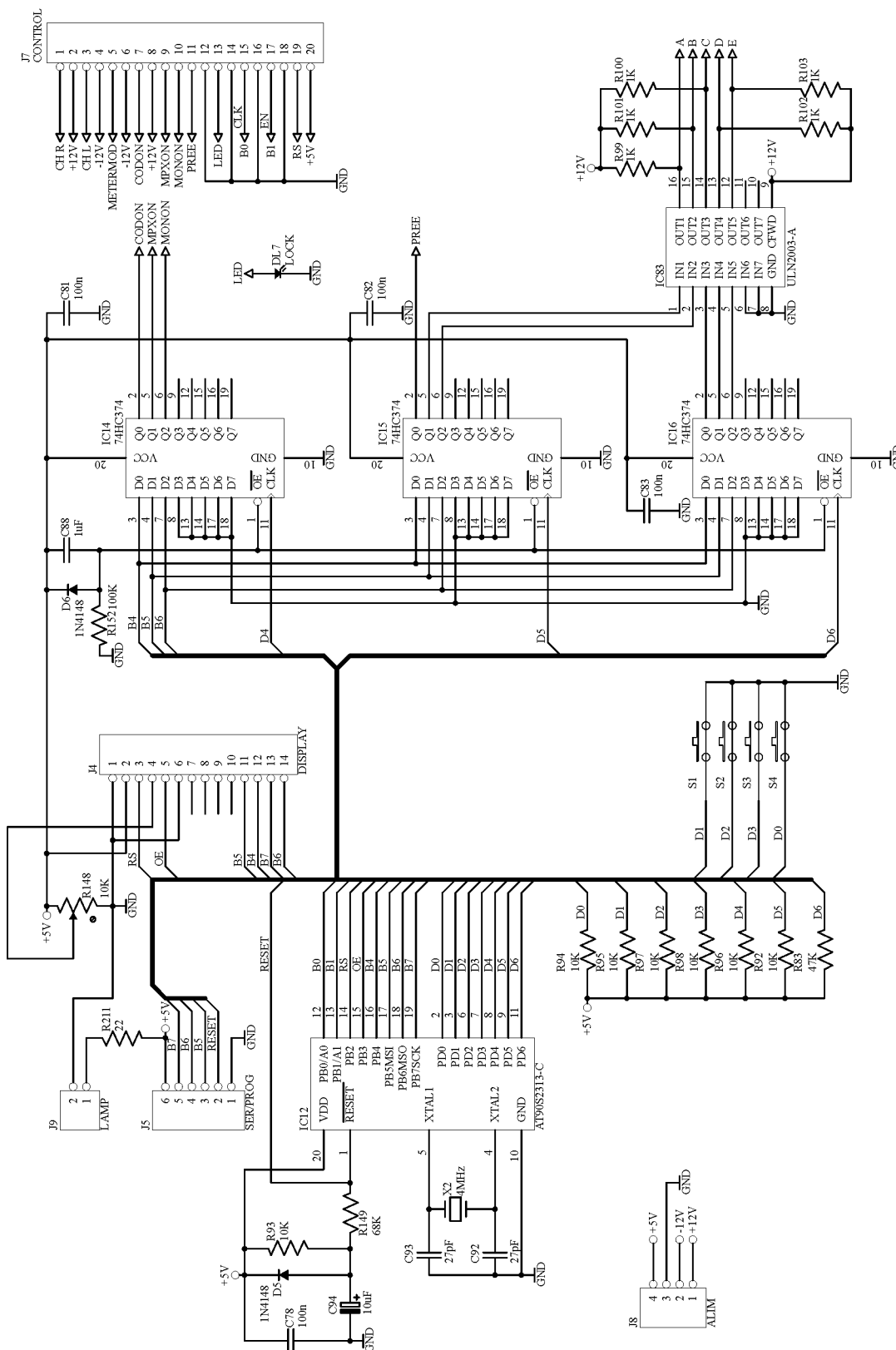
When a VSWR level exceeds the pre-setting threshold, this protection sets the power output at the minimum.

The power supply of this card is connected through the J8 connector.

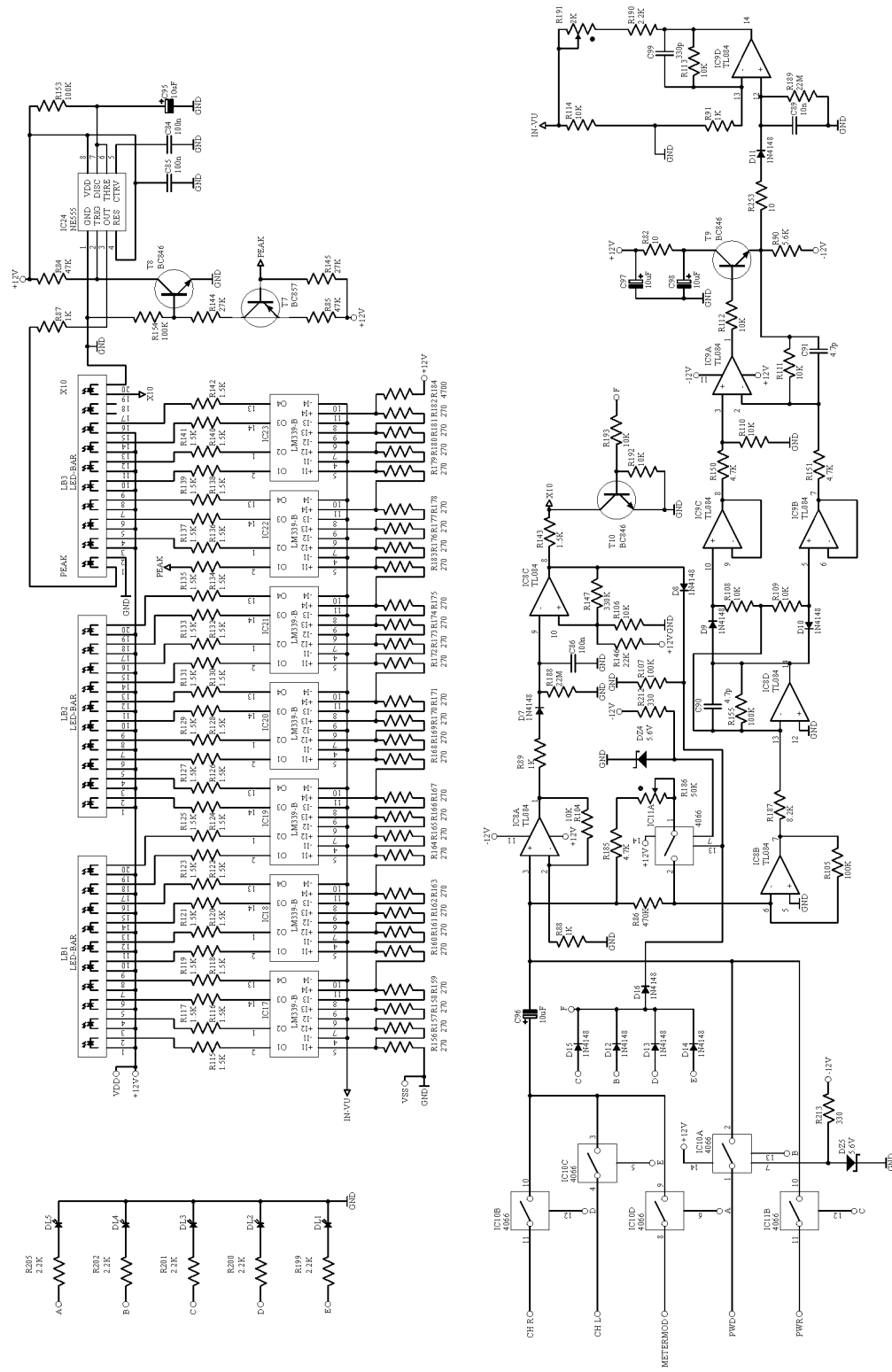
CPU AND CONTROL BOARD GENERAL ELECTRICAL SCHEMATIC



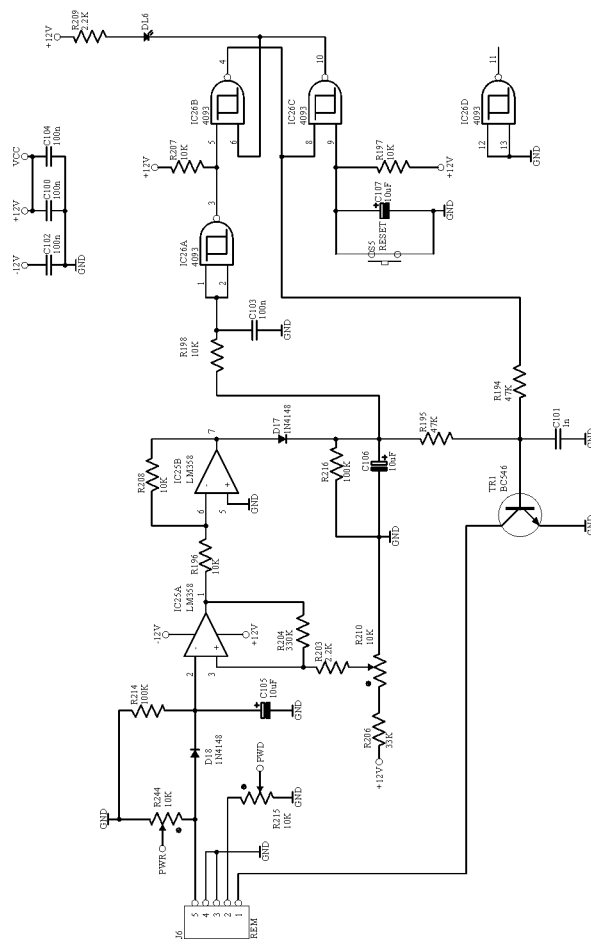
CPU STAGE ELECTRICAL SCHEMATIC



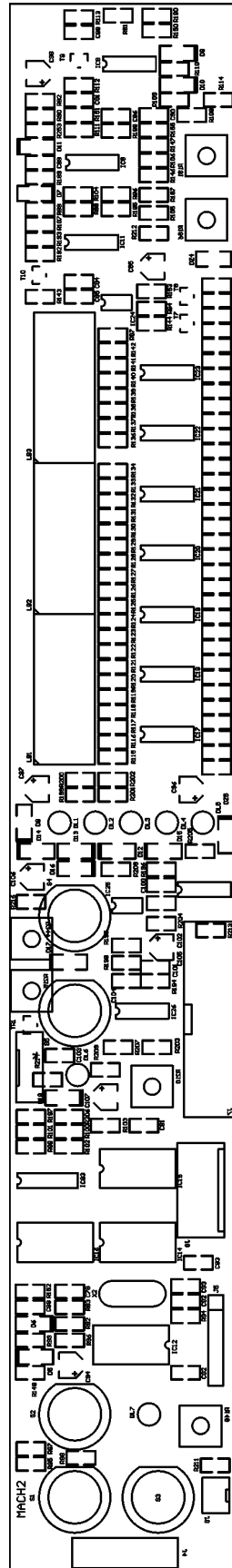
VU-METER STAGE ELECTRICAL SCHEMATIC



PROTECTION STAGE ELECTRICAL SCHEMATIC



CPU AND CONTROL COMPONENT LAYOUT



CPU AND CONTROL BOARD PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	6	LED	DL1 DL2 DL3 DL4 DL5 DL6
2	29	1.5K	R115 R116 R117 R118 R119 R120 R121 R122 R123 R124 R125 R126 R127 R128 R129 R130 R131 R132 R133 R134 R135 R136 R137 R138 R139 R140 R141 R142 R143 R87 R88 R89 R91 R99 R100 R101 R102 R103
3	9	1K	D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 D16 D17 D18
4	14	1N4148	C101
5	1	1n	C88
6	1	1uF	R190 R199 R200 R201 R202 R203 R205 R209
7	8	2.2K	R191
8	1	2K TRIMMER	R150 R151 R185
9	3	4.7K	C90 C91
10	2	4.7p	X2
11	1	4MHz	R90
12	1	5.6K	DZ4 DZ5
13	2	ZENER 5.6V	R187
14	1	8.2K	R82 R253
15	2	10 ohm	R92 R93 R94 R95 R96 R97 R98 R104 R106 R108 R109 R110 R111 R112 R113 R114 R192 R193 R196 R197 R198 R207 R208
16	27	10K	C89
17	1	10n	C94 C95 C96 C97 C98 C105 C106 C107
18	8	10uF	R211
19	1	22 ohm	R146
20	1	22K	R188 R189
21	2	22M	R144 R145
22	2	27K	C92 C93
23	2	27pF	R206
24	1	33K	R83 R84 R85 R194 R195
25	5	47K	R186
26	1	50K TRIMMER	R149
27	1	68K	IC14 IC15 IC16
28	3	IC 74HC374	R105 R107 R152 R153 R154 R155 R214 R216
29	8	100K	C78 C81 C82 C83 C84 C85 C86 C100 C102 C103 C104
30	11	100n	R156 R157 R158 R159 R160 R161
31	28	270 ohm	

			R162 R163 R164 R165 R166 R167
			R168 R169 R170 R171 R172 R173
			R174 R175 R176 R177 R178 R179
			R180 R181 R182 R183
32	2	330 ohm	R212 R213
33	2	330K	R147 R204
34	1	330p	C99
35	1	470K	R86
36	2	IC CD4066	IC10 IC11
37	1	IC CD4093	IC26
38	1	4.7K	R184
39	1	CONNECTOR	J8
40	1	IC AT90S2313-C	IC12
41	1	BC546	TR1
42	3	BC846	T8 T9 T10
43	1	BC857	T7
44	1	CONNECTOR	J7
46	1	CONNECTOR	J9
47	3	LED-BAR	LB1 LB2 LB3
48	7	IC LM339-B	IC17 IC18 IC19 IC20 IC21 IC22 IC23
49	1	IC LM358	IC25
50	1	LED	DL7
51	1	IC NE555	IC24
52	1	CONNECTOR	J6
53	5	PB	S1 S2 S3 S4 S5
54	1	CONNECTOR	J5
55	2	IC TL084	IC8 IC9
56	1	IC ULN2003	IC83
57	4	10K TRIMMER	R148 R210 R215 R244

30W AMPLIFIER BOARD

GENERAL DESCRIPTION

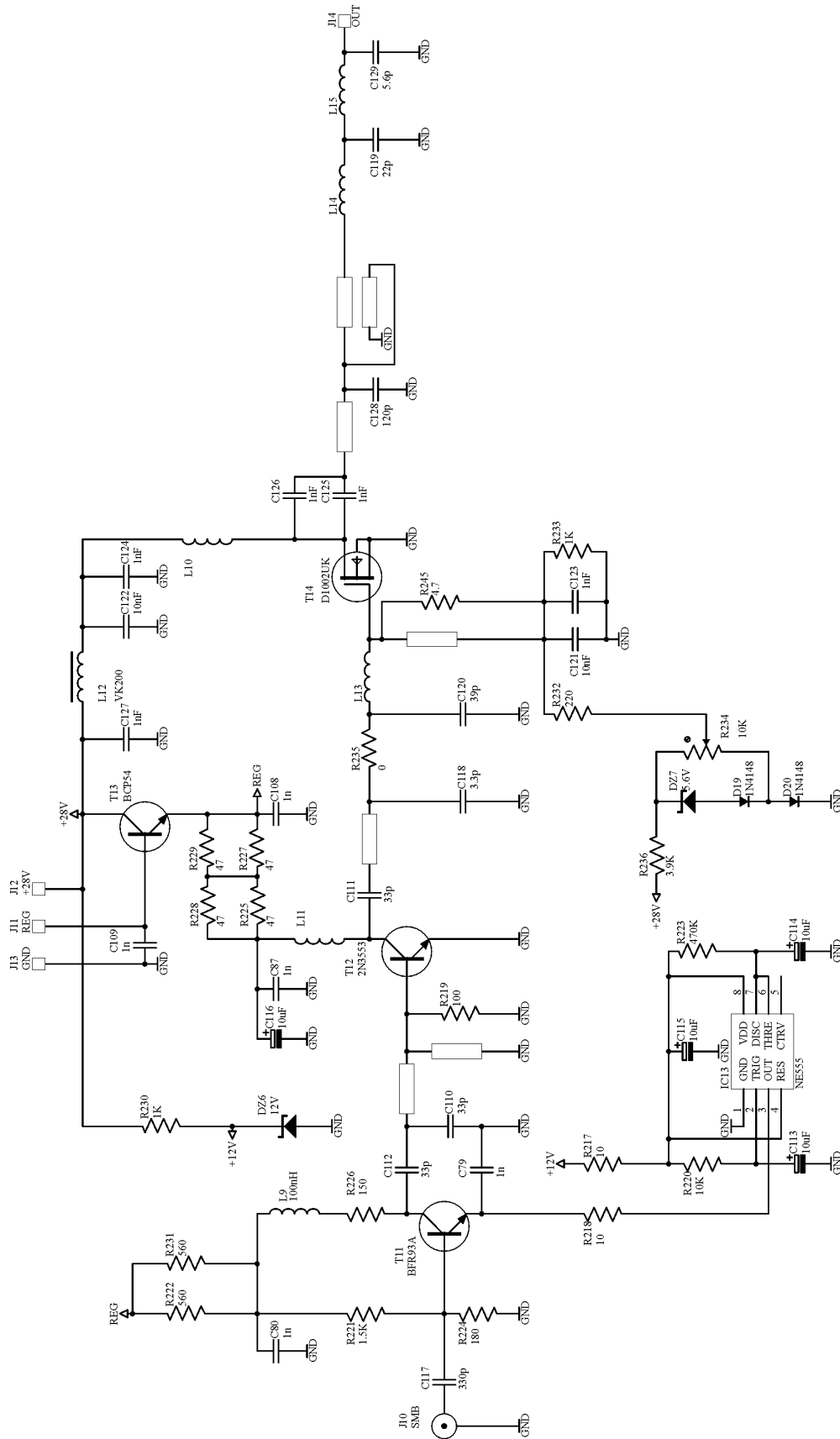
This board is composed of three amplification stages. The first stage is realised by a BFR93 transistor that amplifies the signal coming out from the PLL synthesizer. The second stage is composed by a 2N3553 transistor that sets the level for the final stage. The third and final stage is composed by D1002UK RF mosfet that brings the output level up to 30W.

The R255 trimmer in the POWERADJ board adjusts simultaneously the supply voltage level of first and second stage to obtain the power output regulation.

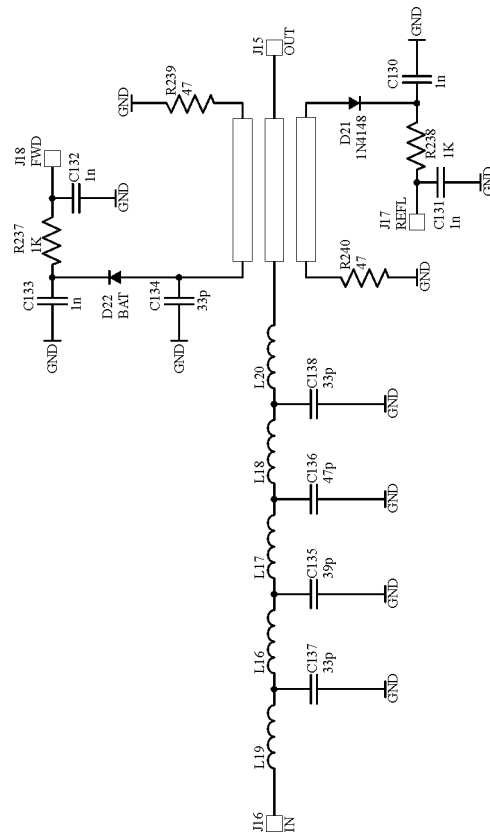
In the 30W amplifier board an on-timer with 7-8 seconds delay time is present, in order to avoid accidental out-of-band emissions in the initial PLL locking period.

After this RF broadband amplifier there is a low-pass filter with the directional coupler; this filter reduces the harmonic spurious and the directional coupler generates the dc signals proportional to the direct and reflected RF power.

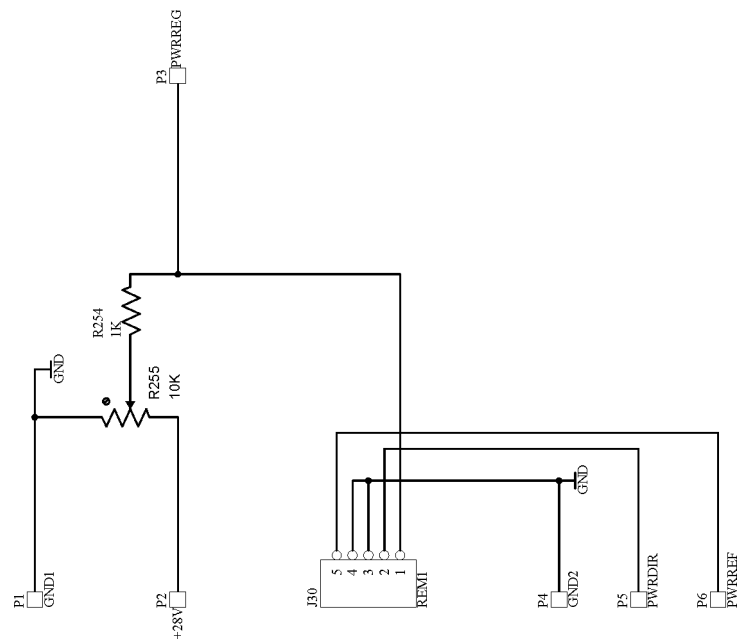
30W AMPLIFIER ELECTRICAL SCHEMATIC



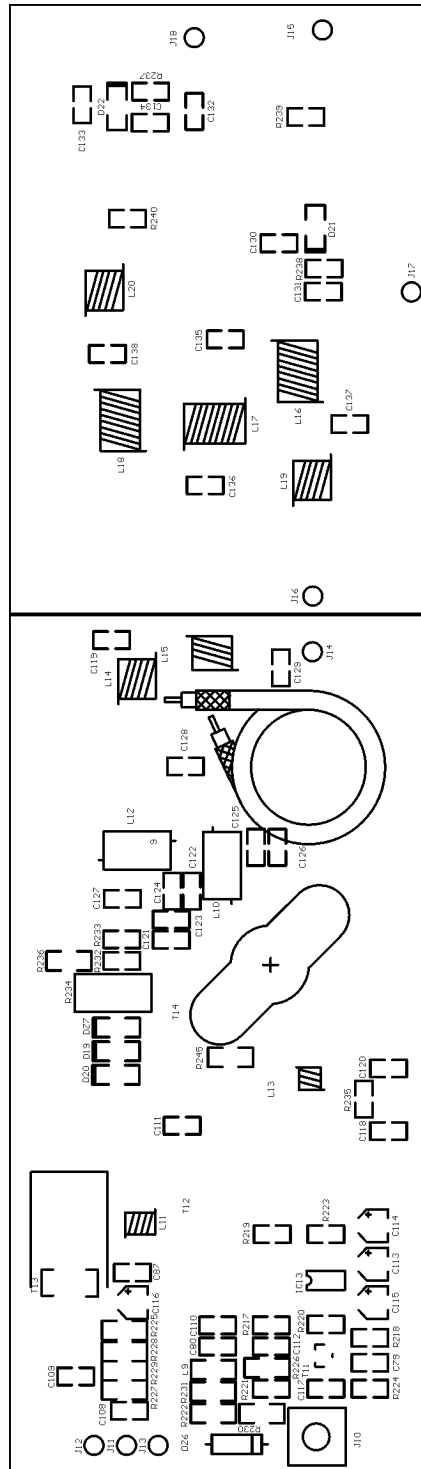
LOW-PASS FILTER ELECTRICAL SCHEMATIC



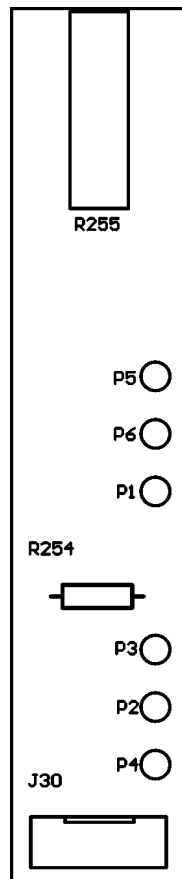
POWER ADJ ELECTRICAL SCHEMATIC



30W AMPLIFIER AND LOW-PASS FILTER COMPONENT LAYOUT



POWER ADJ COMPONENT LAYOUT



30W AMPLIFIER PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	5	IND	L10 L11 L13 L14 L15
2	1	PIN	J12
3	1	0 ohm	R235
4	1	1.5K	R221
5	2	1K	R230 R233
6	2	1N4148	D19 D20
7	5	1n	C79 C80 C87 C108 C109
8	5	1nF	C123 C124 C125 C126 C127
9	1	2N3553	T12
10	1	3.3p	C118
11	1	3.9K	R236
12	1	4.7 ohm	R245
13	1	5.6V ZENER	DZ7
14	1	5.6p	C129
15	2	10 ohm	R217 R218
16	2	10K	R220 R234
17	2	10nF	C121 C122
18	4	10uF	C113 C114 C115 C116
19	1	12V ZENER	DZ6
20	1	22p	C119
21	3	33p	C110 C111 C112
22	1	39p	C120
23	4	47 ohm	R225 R227 R228 R229
24	1	100 ohm	R219
25	1	100nH	L9
26	1	120p	C128
27	1	150 ohm	R226
28	1	180 ohm	R224
29	1	220 ohm	R232
30	1	330p	C117
31	1	470K	R223
32	2	560 ohm	R222 R231
33	1	BCP54	T13
34	1	BFR93A	T11
35	1	D1002UK	T14
36	1	PIN	J13
37	1	IC NE555	IC13
38	1	PIN	J14
39	1	PIN	J11
40	1	CONNECTOR SMB	J10
41	1	VK200	L12

LOW-PASS FILTER PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	2	1K	R237 R238
2	1	1N4148	D21
3	4	1n	C130 C131 C132 C133
4	3	33p	C134 C137 C138
5	1	39p	C135
6	2	47 ohm	R239 R240
7	1	47p	C136
8	1	SCHOTTKY	D22
9	1	PIN	J18
10	1	PIN	J16
11	1	PIN	J15
12	1	PIN	J17
13	5	IND	L16 L17 L18 L19 L20

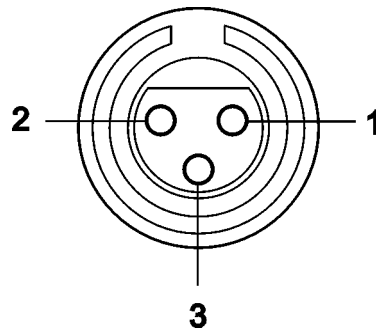
POWER ADJ PARTS LIST

PART	USED	DESCRIPTION	COMPONENT IDENTIFIER
1	1	PIN	P2
2	1	1K	R254
3	1	10K TRIMMER	R255
4	1	PIN	P1
5	1	PIN	P4
6	1	PIN	P5
7	1	PIN	P6
8	1	PIN	P3
9	1	CONNECTOR	J30

XLR AUDIO CONNECTOR PINOUTS

The figure below shows how to realise the audio cable connection in balanced or unbalanced mode.

XLR FEMALE CONNECTION



XLR PIN	BALANCED	UNBALANCED
1	GROUND	GROUND
2	+ SIGNAL	+ SIGNAL
3	- SIGNAL	GROUND

GUARANTEE

The transmitter equipment carries a one year guarantee on all its components with the exclusion of the final RF power mosfet, which may be damaged by faulty output connections.

This guarantee does not cover damages due to:

- ?? Delivery operations
- ?? Non authorised maintenance and modifications
- ?? External causes
- ?? Improper use or abnormal conditions of operations

No other guarantee is expressed or implied.

During the guarantee period, M2 system Europe will, at its option, either repair or replace products which prove to be defective. When trouble occurs, buyer should contact his local supplier or M2 system Europe giving full details of the problem and the model name and serial number.

For the products returned to M2 system Europe for guarantee service, shipping and transportation charges to deliver the product to M2 system Europe as well as transportation charges to return it back (door to door) will be at buyer's charge.

PREMUTO; in a same time

TOUCH SEL
SET UP
CONFIRMATION SET